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NCP Survey

1 This RFC is the first in a series which will request information on implementation of host to host protocol. We would appreciate a reply to this RFC from all sites within two weeks. One convenient way to reply is to make a copy of this RFC at the NIC and insert the replies at the appropriate spots. The results of this survey will be published. Please send replies to nic ident CSK or to

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2 This particular RFC will deal with implementations of Network Control Programs (NCPs). Future RFCs will deal with implementations of Telnet, RJE, etc. 2

3 In order to ask questions about NCPs and get meaningful replies, I will here describe what I consider to be my concept of an NCP. 3

3a An NCP is that part of the system which performs the tasks necessary for host to host protocol as specified by document NIC 7104 (protocols notebook). 3a

3b NCPs contain the following parts (though not necessarily as separate pieces): 3b

3b1 Code which handles connection establishment including maintenance of the rendezvous table (table of open and pending connections). 3b1

3b2 Code which handles transmission over open connections including buffer management and the sending of allocate and giveback commands. 3b2

3b3 Code which handles the actual movement of messages in and out of the Imp (sometimes called the Imp handler and sometimes in a separate cpu). 3b3

3b4 Other code including measurements, initialization, etc. 3b4

4 Please answer the following questions. It is probably appropriate to give this survey to the coder of the NCP or other knowledgeable person. Write na (not applicable) where it is appropriate. Circle the number of the appropriate choice when a choice is required. Thank you. 4

5 General Information 5

5a Host Name: ---- 5a

5b Site Number: ---- 5b

5c Your name ---- 5c

5d Main cpu is a ---- (360/75, PDP-10, B6700, etc.) 5d

5e Operating system in main cpu is ---- (tenex, os/360, etc.) 5e

5f Is documentation available on your NCP? 5f

5f1 user level (how to use NCP) 5f1

5f2 system level (implementation) 5f2

5f3 Is the documentation available at the NIC? 5f3

6 Imp interface 6

6a built: 6a

6a1 in house 6a1

6a2 contracted to ---- 6a2

6b full or half duplex? 6b

6c maximum bandwidth is ---- baud in each direction 6c

7 Coding of NCP 7

7a NCP was written: 7a

7a1 in house 7a1

7a1a written in ---- man-months 7a1a

7a1b Name of person who wrote NCP ---- 7a1b

7a1c debugged in ---- man-weeks 7a1c

7a1d machine hours used in development and debugging of NCP ---- 7a1d

7a2 contracted to ---- 7a2

7a2a contractor took ---- man-months 7a2a

7a3 supplied from another site without modification by this site (specify site where NCP obtained from ------) 7a3

7a4 supplied from another site but modified by this site for different system or for other reasons (specify site where NCP obtained from ------) 7a4

7a4a modifications took ---- man-weeks 7a4a

7b NCP is maintained: 7b

7b1 in house (person's name ----) 7b1

7b2 by another site (specify site ----) 7b2

7c Size of NCP code: 7c

7c1 Total size of all NCP code (not tables or buffers) as described above 7c1

7c1a ---- words of ---- bits per word 7c1a

7c2 size of code which initializes NCP (on system up or after NCP or NET crash) 7c2

7c2a ---- words of ---- bits per word 7c2a

7c3 size of code which handles opening and closing of connections 7c3

7c3a ---- words of ---- bits per word 7c3a

7c4 size of code which moves data from user process to Imp handler or from Imp handler to user process 7c4

7c4a ---- words of ---- bits per word 7c4a

7c5 size of imp handler code 7c5

7c5a ---- words of ---- bits per word 7c5a

7c6 size of other code (explain what it is) 7c6

7c6a ---- words of ---- bits per word 7c6a

7d Size of NCP tables: 7d

7d1 size of tables indexed by open connection (i.e. tables for control of open connections) 7d1

7d1a ---- entries of ---- words per entry of ---- bits per word 7d1a

7d2 size of tables indexed by link (i.e. tables for link management and for quick association of an input message with a process) 7d2

7d2a ---- entries of ---- words per entry of ---- bits per word 7d2a

7d3 size of other tables (explain) 7d3

7d3a ---- entries of ---- words per entry of ---- bits per word 7d3a

8 Host-Imp communications 8

8a Imp handling is performed in 8a

8a1 main cpu 8a1

8a2 additional processor (specify machine ----) 8a2

8b Imp handling is performed at: 8b

8b1 interrupt level by resident code 8b1

8b2 scheduled process with resident code 8b2

8b3 scheduled process with swappable code 8b3

8c Number and size of buffers for the Imp handler (on input, number of buffers for messages before cpu will stop taking bits from imp. On output, number of buffers which may be queued before user processes will be blocked waiting for a free buffer) 8c

8c1 ---- output buffers for sending to net of ---- words of ---- bits per word 8c1

8c2 ---- input buffers for receiving from net of ---- words of ---- bits per word 8c2

9 NCP-Imp handler communications 9

9a NCP communiates with Imp handler by 9a

9a1 putting message on queue for handler and waking (unblocking) handler (i.e. shared memory approach) 9a1

9a2 some other mechanism (explain) 9a2

10 NCP-User communication 10

10a Mechanism: 10a

10a1 special mechanism for network (i.e. different than files) using: 10a1

10a1a shared resident memory 10a1a

10a1b shared non-resident (swappable memory or file) 10a1b

10a1c other (explain) 10a1c

10a2 similar to file io but network assigned rather than file (i.e. transparent to user process coding) 10a2

10b Bytes sizes allowed (circle all) 10b

10b1 1 bit 10b1

10b2 7 bits 10b2

10b3 8 bits 10b3

10b4 9 bits 10b4

10b5 16 bits 10b5

10b6 18 bits 10b6

10b7 24 bits 10b7

10b8 32 bits 10b8

10b9 36 bits 10b9

10b10 other (explain) 10b10

11 Buffer space allocations 11

11a initial allocation when connection (recieve) is opened 11a

11a1 ---- messages and ---- bits 11a1

11b factors which will change this allocation 11b

11b1 up 11b1

11b2 down 11b2

11c conditions which would cause a giveback command to be sent 11c

12 Protocol facilities 12

12a Errors 12a

12a1 Do you send error commands when you detect protocol errors? 12a1

12a2 Do you log it (or take some other action) when you recieve error commands? 12a2

12b Queueing 12b

12b1 do you allow queueing of connections (i.e. when an rts or str is recieved for which no request is pending, do you refuse it (send back a cls) or queue it? also do you queue when two or more requests match the same socket?) 12b1

12b1a yes always 12b1a

12b1b no always 12b1b

12b1c yes for listens 12b1c

12b1d other (explain) 12b1d

12c Are there hooks (code) in the NCP for: 12c

12c1 NCP measurement 12c1

12c2 Network measurement 12c2

12c3 MSP and other protocol experiments 12c3

12c4 Do any of these hooks allow a user process to send a message with a given leader or look at all messages which arrive with a given leader? 12c4

13 Time outs 13

13a How long will the NCP hold a request for connection (INIT or LISTEN) from a user process before timing out if not matched by an RTS or STR from the net ---- 13a

13b How long will the NCP hold an STR or RTS recieved from the net before timing out and sending a CLS ---- 13b

13c How long will the NCP wait after sending a reset or echo command before declaring the host dead (assuming you got a RFNM at least) ---- 13c

13d Any other timeouts? (explain) 13d

14 Have you made any measurements on the effect of network use on your system? 14

14a effect of local users using telnet to go out to net 14a

14b effect of foreign users using your system via net 14b

14c bandwidth you have been able to achieve 14c

15 Are any changes planned or in progress in the design or coding of your NCP? (explain) 15

16 Other Comments 16

16a Please feel free to add other comments on your NCP which you feel would be of interest to the network community. 16a